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collection of Illinois fossils available. The collection, which represents a value of several thousand dollars and was given to the university without any conditions or reservations, will be housed in the Walker Museum of the university.

THE Liquid Carbonic Division of the Compressed Gas Manufacturers' Association announces the establishment of an industrial fellowship in the Mellon Institute of Industrial Research of the University of Pittsburgh, for the purpose of classifying, studying and developing the uses for liquid carbon dioxide. The founding of this fellowship is in accord with the desire of the members of the association to cooperate with users and prospective users of liquid carbon dioxide, with the object of developing efficient means of applying the gas and of obtaining fundamental data bearing on its use in various industries. In addition to conducting research work, the fellowship will be made a clearing-house of information regarding various uses of liquid carbon dioxide, and data will be kept on file for the accommodation of prospective users of this product. The present incumbent of the fellowship is Charles L. Jones, who will be glad to correspond with any one interested in the use of liquid carbon dioxide in industry.

#### UNIVERSITY AND EDUCATIONAL NOTES

SIR WILLIAM DUNN's trustees have provided the sum of £100,000 for the establishment of a school of pathology at Oxford. They have also endowed with £10,000 a readership in biochemistry at Cambridge.

THE French government has offered a number of scholarships to Canadian universities, including the universities of Toronto, McGill, Laval and Ottawa. The winner of a scholarship will spend the next academic year in France. The scholarship has a value of 6,000 francs, with an additional 1,000 francs for traveling expenses.

MAJOR GENERAL LEONARD WOOD has resigned the office of provost of the University

of Pennsylvania in order to remain as governor general of the Philippine Islands.

DR. STEPHEN S. COLVIN, professor of educational psychology at Brown University, has been elected professor of education at Teachers College, Columbia University. Dr. George A. Coe and Dr. Albert Shiels have also been elected professors of education.

DR. ALBERT SALATHE, of the College of Pharmacy at Albany, has been appointed head of the department of chemistry of Sweet Briar College, and Dr. Frederick William Stacy, formerly of the Florida State College for Women, has been appointed head of the department of psychology.

A COURSE of lectures on "Animal Psychology" will be delivered at Harvard University during the second half of the current college year by Dr. Wallace Craig, formerly professor of philosophy at the University of Maine.

M. AUGER has been appointed director of the laboratory of analytical chemistry at the University of Paris, to succeed the late M. Ouvrard.

PROFESSOR MAX BODENSTEIN has been invited to succeed Professor Nernst as head of the Physical-Chemical Institute of the University of Berlin.

#### DISCUSSION AND CORRESPONDENCE

##### GLACIATION IN THE CORDILLERAN REGION<sup>1</sup>

TO THE EDITOR OF SCIENCE: Communications on the above subject by Thomas Large and Frank Leverett have appeared, respectively, in the September 22 and October 6 issues of SCIENCE. To these the writer wishes to add that during May and June, 1922, he found glacial drift including till with striated stones similar to that mentioned by Leverett at many other places on the Columbia Plateau west and southwest of Spokane. The writer expects to study the region further and to publish the results later on, but the information now at hand is sufficient to warrant the statement that

<sup>1</sup> Published by permission of the Director of the U. S. Geological Survey.

during one or more comparatively early stages of the Pleistocene ice from the north advanced over the Columbia Plateau in a southwesterly direction far beyond what heretofore has been regarded as the southern limit of glaciation. The evidence at hand tends to show that the ice extended at least over large parts of Spokane, Lincoln and Adams counties, and less complete information suggests the possibility that the glaciation extended much farther.

Concerning the glacial drift, which by the way is not the only evidence the region affords that land ice was formerly present, the alternative ideas that it was brought to place by floating ice or running water have been considered and rejected.<sup>1</sup> Large patches of the drift may be seen southwest of Cheney, west of Lantz, and in the neighborhoods of Winona, Lacrosse and Kahlotus, these occurrences being selected for mention at random and not because they are more typical than scores of others scattered throughout the region.

The writer wishes to point out that he does not herein attempt to correlate or otherwise define the relations between the glaciation described and the glaciation already known to have covered the plateau west of the Grand Coulee or an ice stream which, as shown by recent observations, traversed the coulee itself.

J. T. PARDEE

U. S. GEOLOGICAL SURVEY

#### EFFECTS OF COPPER WIRE ON TREES

IN 1918 the writer heard it stated that shade trees were being killed by driving one or two pieces of copper wire into each. To test the effects of copper wire six young trees from two to four inches in diameter were selected, and on March 21, 1919, there were driven into each tree five pieces of large copper wire 1.5 inches long. The end of each wire was left flush with the outer surface of bark. All wires were within six feet of the base of the tree. The trees comprised two hemlocks, two alders, one cedar, one willow.

On July 3, 1922 the trees were examined and found to be perfectly healthy. In all cases they had completely healed over the wires, and their growth was equal to that of other similar

trees in the immediate vicinity. On cutting into the trees, it was found that there was very little injury to the wood, merely a brown color showing for about 1.5 inches above and below the wire, and about 0.25 inch to each side.

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#### TANGENT LINES

Osgood and Graustein state in their *Analytic Geometry*, page 176: "A tangent to a conic might then be defined as the limiting position of a line having two points of intersection with the conic, when these points approach coincidence in a single point." This accords with the ancient idea of a tangent as touching a conic at only one point. That idea is given in a paragraph on page 163 of my *History of Mathematics*, from which Professor G. A. Miller quotes<sup>1</sup> part of a sentence and then criticizes that part. I illustrate this mode of criticizing by quoting from Professor Miller's review the following: "Students can usually prove a large number of theorems which they do not understand." Serious-minded readers would deny this statement, but when they read the whole sentence and the paragraph from which this fragment is taken, they will acquiesce.

FLORIAN CAJORI

#### SCIENTIFIC BOOKS

*A Treatise on the Analysis of Spectra.* By W. M. Hicks, Sc.D., F.R.S., emeritus professor of physics in the University of Sheffield, formerly fellow of St. John's College, Cambridge. Cambridge University Press, 1922, 231 pp. of text, 92 pp. of tables and 25 figures.

The purpose of the book is twofold, to serve as an introduction and handbook and to present the mature results of the author's extensive investigations. The treatise is based on an Adams prize essay presented in 1921. For the first purpose the appendix contains the Meggers and Peters tables for corrections to be added to the wave-lengths in air to reduce

<sup>1</sup> This Journal, October 13, page 421.